

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior versions and listings of claims in this application.

LISTING OF CLAIMS:

1. (Currently Amended)

A hydraulic pressure control device, comprising:

a cylindrical valve body;

~~at least one opening portion provided on the valve body;~~

a line port provided in the valve body and supplied with a hydraulic fluid;

a supply port provided in the valve body and supplying the hydraulic fluid;

a spool valve disposed in the valve body and slidable along an inner surface of the valve body along an axis;

a linear solenoid valve regulates hydraulic fluid pressure in a first conduit, the hydraulic pressure in the first conduit provides force against the spool valve in a first direction along the axis;

a feedback conduit fluidly connects to the supply port, hydraulic pressure in the feedback conduit provides a force against the spool valve in a second direction that is opposite to the first direction;

the hydraulic pressure in the first conduit and the hydraulic pressure in the feedback conduit together contribute to an overall force on the spool valve that controls the physical relationship between the spool valve and the valve body;

at least one land portion provided at the spool valve and slidable along the inner surface of the valve body; and

at least one recess provided at an edge of the land portion of the spool valve;
and

wherein cross-sectional opening area being open to the inlet port between the recess and the inner surface of the valve body continuously changes in sliding direction of the spool valve, and

the cross-sectional opening area of the recess is formed to have a proportional relationship between flow quantity of a hydraulic fluid and moving distance of the spool valve.

2. (Previously Presented)

A hydraulic pressure control device according to claim 1,
wherein the cross-sectional opening area between the recess and the inner surface of the valve body is continuously decreased in sliding direction of the spool valve from the edge portion of the land portion.

3. (Canceled)

4. (Previously Presented)

A hydraulic pressure control device according to claim 1, wherein a plurality of recesses are provided at each land portion corresponding to the opening portion of the valve body.

5. (Previously Presented)

A hydraulic pressure control device according to claim 1, wherein the recess is formed by machining of the land portion using a T-slot cutter, and working edge of the T-slot cutter is shaped in accordance with shape of the recess.

6. (Currently Amended)

A hydraulic pressure control device, comprising:

a cylindrical valve body;

~~at least one opening portion provided on the valve body;~~

a line port provided on the valve body and supplied with a line pressure;

a supply port provided on the valve body and outputting a controlled pressure which is controlled from the line pressure;

a spool valve disposed in the valve body and slidable along an inner surface of the valve body along an axis;

a linear solenoid valve regulates hydraulic fluid pressure in a first conduit, the hydraulic pressure in the first conduit provides force against the spool valve in a first direction along the axis;

a feedback conduit fluidly connects to the supply port, the hydraulic pressure in the feedback conduit acts on the spool valve and provides a force against the spool valve in a second direction that is opposite to the first direction;

the hydraulic pressure in the first conduit and the hydraulic pressure in the feedback conduit together contribute to an overall force on the spool valve that controls the physical relationship between the spool valve and the valve body;

at least one land portion provided at the spool valve and slidable along the inner surface of the valve body; and

at least one recess provided at a wall of the inner surface of the valve body facing the outer surface of the spool valve;

wherein the cross-sectional opening area being open to the inlet port between the recess and the outer surface of the spool valve is continuously decreased in sliding direction of the spool valve from the opening portion and,

the cross-sectional opening area of the recess is formed to have a proportional relationship between flow quantity of a hydraulic fluid and moving distance of the spool valve.

7. (Currently Amended)

A hydraulic pressure control device, comprising:

a friction engagement means including a drive rotor and a driven rotor;

a piston pushing a plurality of clutch discs between the drive rotor and driven rotor and engaging the drive rotor with the driven rotor;

a hydraulic pressure chamber defined by the hydraulic pressure for changing a pushing force of the piston; a hydraulic pressure control mechanism controlling hydraulic pressure to be supplied to the hydraulic pressure chamber;

a cylindrical valve body provided at the hydraulic pressure control mechanism;

~~at least one opening portion provided on the valve body;~~

a spool valve disposed in the valve body and slidable along an inner surface of the valve body;

a linear solenoid valve regulates hydraulic fluid pressure in a first conduit, the hydraulic pressure in the first conduit provides force against the spool valve in a first direction along an axis;

a feedback conduit fluidly connects to the supply port, the hydraulic pressure in the feedback conduit provides a force against the spool valve in a second direction that is opposite to the first direction;

the hydraulic pressure in the first conduit and the hydraulic pressure in the feedback conduit together contribute to an overall force on the spool valve that controls the physical relationship between the spool valve and the valve body;

at least one land portion provided at the spool valve and slidable along the inner surface of the valve body;

and at least one recess provided at an edge of the land portion of the spool valve;

a liner solenoid valve regulating a hydraulic pressure in the first conduit;

wherein the cross-sectional opening area between the recess and the inner surface of the valve body is continuously ~~changed~~ decreased in sliding direction of the spool valve from the edge portion of the land portion.

8. (Currently Amended)

A hydraulic pressure control device, comprising:

a friction engagement means including a drive rotor and a driven rotor;

a piston pushing a plurality of clutch discs between the drive rotor and driven rotor and engaging the drive rotor with the driven rotor;

a hydraulic pressure chamber defined by the hydraulic pressure $[[p]]$ for changing a pushing force of the piston;

a hydraulic pressure control mechanism controlling hydraulic pressure to be supplied to the hydraulic pressure chamber;

a cylindrical valve body provided at the hydraulic pressure control mechanism;

~~at least one opening portion provided on the valve body;~~

a line port provided in the valve body and supplied with a hydraulic fluid;

a supply port provided in the valve body and supplying the hydraulic fluid;

a spool valve disposed in the valve body and slidable along an inner surface of the valve body along an axis;

a linear solenoid valve regulates hydraulic fluid pressure in a first conduit, the hydraulic pressure in the first conduit provides force against the spool valve in a first direction along the axis;

a feedback conduit fluidly connects to the supply port, the hydraulic pressure in the feedback conduit acts on the spool valve and provides a force against the spool valve in a second direction that is opposite to the first direction;

the hydraulic pressure in the first conduit and the hydraulic pressure in the feedback conduit together contribute to an overall force on the spool valve that controls the physical relationship between the spool valve and the valve body;

at least one land portion provided at the spool valve and slidable along the inner surface of the valve body;

and at least one recess provided at a wall of the inner surface of the valve body facing the outer surface of the spool valve;

a liner solenoid valve regulating a hydraulic pressure which controls physical relationship between the spool valve and the valve body;

wherein the cross-sectional opening area between the recess and the outer surface of the spool valve is continuously decreased in sliding direction of the spool valve from the opening portion.